Undergraduate Medical Education  
Queen’s University  

Developing a Competency Based Undergraduate Medical Curriculum

1.0 Conceptual Framework

This document is intended to define a conceptual framework that can be used to evaluate and revise the Undergraduate Medical Curriculum at Queen’s University.

A university based program must reflect the mission and values of the parent institution and faculty, as well as the needs of the society in which it exists and derives support. From these considerations, a set of guiding core values or principles can be defined which will underlie the process of curricular development.

An educational program intended to prepare individuals to undertake a professional role must be based upon learning goals that reflect the set of specific competencies required of that role. For this purpose, “competencies” can be defined as that knowledge, skill and attributes required of an individual successfully filling that role.

In undergraduate medical education, the attributes required of practicing physicians are the appropriate “target” for those goals, and have been defined by both the Royal College of Physicians and Surgeons and College of Family Physicians as competency frameworks that are used to guide educational standards.

An undergraduate program must therefore define those competencies and use them to guide appropriate curricular structures that will allow a novice learner to progress to the point of preparation for subspecialty training and lifelong learning. Doing so is essential to the development of a comprehensive and integrated curriculum, in which each competency will be linked with learning and evaluative elements intended to ensure they are achieved.

The framework for curricular development can therefore be defined as follows:

<table>
<thead>
<tr>
<th>Core Values and Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>→ Program Goals</td>
</tr>
<tr>
<td>→ Competency Domains</td>
</tr>
<tr>
<td>→ Key Competencies</td>
</tr>
<tr>
<td>→ Descriptors</td>
</tr>
<tr>
<td>→ Learning Objectives</td>
</tr>
<tr>
<td>→ Assessment Methodologies</td>
</tr>
<tr>
<td>→ Teaching/Learning Strategies</td>
</tr>
</tbody>
</table>
This document will develop this process to the level of Competency Descriptors. Based on this framework, the Curriculum Committee and its subcommittees will develop a curricular structure designed to optimally meet these goals, as well as appropriate teaching and evaluation standards. The development of specific Learning Objectives, Assessment Methodologies and Teaching Strategies must be based on this framework, but defined within each curricular component by designated content leaders.

2.0 Core Values

Based on the above considerations, five key values or principles can be defined:

Learning
The primary purpose of any educational program must be learning. To serve this purpose:

- We support and value teaching
- We support and value innovation in learning and teaching
- We develop structures, processes and technology to facilitate learning
- We develop an environment that will optimize learning
- We believe learning is a lifelong process and that those skills must begin at the undergraduate level

Patient Care
As a medical school, our learning must be directed to the ultimate goal of serving the needs of our patients. Therefore:

- We ensure that our students understand normal and abnormal human functioning
- We ensure that our students are able to recognize and manage clinical presentations of disease
- We ensure our students understand the impact of disease on patients, their families and society
- We ensure our students are able to direct appropriate preventative strategies

Citizenship
We believe our students should be active contributors and participants in the leadership of their communities, society and professional organizations.

Scholarship
We believe that exemplary providers of patient care continually inquire, are skilled problem solvers, are motivated by the highest standards of practice and research, and contribute to the acquisition of new knowledge through active research and publication

Inclusion
We believe that the practice of medicine should be open to individuals of any cultural or ethnic background, and that the profession should reflect the multicultural composition of the society in which it exists.
3.0 Goals of the Undergraduate Program

Our students will acquire an exemplary foundation in medical knowledge, skills and professional attitudes.

Our students will excel in qualifying examinations and successfully compete for postgraduate training programs.

Our students will be ready to serve patients and communities in fulfilling and productive careers.

Our innovative approaches to adult education will foster relevant, integrated and interactive learning experiences.

*Foundational knowledge and skills* are those core competencies that underlie every practicing physician’s approach to patient care, are prerequisites to training and practice in any subspecialty, and support the ability to assess patients, manage presenting problems, seek out and critically analyse new information and learn throughout their career.

*Foundational attitudes and behaviours* are essential to the practice of medicine in all its variations. They are expressed in the Principles of Family Medicine and CanMEDs competencies and include Compassion, Sensitivity, Integrity, Curiosity, Scholarship, Communication, Collaboration, Advocacy, Management.

4.0 Our Educational Principles

```
We strive to provide Medical Education that is:

Patient Focused
Learner Centred
Competency Based
Continuing
```

5.0 Defining a Competency Framework
What are Competencies?
“Competent performance” occurs when an individual achieves or produces some result or output at the level of quality established for it.

Competencies are the traits or characteristics that medical students will use for successful or exemplary performance. Competencies create a causal link between certain behaviours and success. They describe what makes medical students successful in their role.

Framing the curriculum through competencies acknowledges that skills, attitudes, and behaviors are as important as knowledge base to enable medical students to become competent physicians.

Do we have to teach all competencies all the time?
While medical graduates will have the opportunity to learn and demonstrate all competencies throughout the curriculum, not every competency is taught in every learning session, nor is every competency of equal focus in all learning sessions. However, the curriculum emphasizes more than any one competency, such as medical expertise, in any learning session, and all competencies in any unit or course.

How do competencies assist with student assessment?
The term, ‘Key competencies’ is used to designate overarching competencies that enable individuals to participate effectively in multiple contexts and that contribute to overall success for graduates from Undergraduate Medical Education. By establishing key competencies to frame the Undergraduate Medical Education curriculum, faculty and students become mutually accountable for their performance in education. This strategy entails the clear definition of standards to assess what students have learned in Undergraduate Medical Education.

What are Domains and where do they come from?
Acquisition of competence is facilitated through the designation of specific Domains, which, when combined provide insight into how well a student is progressing towards becoming a competent physician. In Canada, the Domains are reflected effectively in two documents:

1. The Four Principles of Family Medicine (The College of Family Physicians of Canada)
   - The family physician is a skilled clinician.
   - Family medicine is a community-based discipline.
   - The family physician is a resource to a defined practice population.
   - The patient-physician relationship is central to the role of the family physician.

2. The CanMEDS Physician Competency Framework. (The Royal College of Physicians and Surgeons). The framework is built around seven roles:
- Medical Expert
- Communicator
- Collaborator
- Manager
- Health Advocate
- Scholar
- Professional

This framework provides the definition, description, elements, key and enabling competencies for practicing physicians at the Post-Graduate level and beyond.

The Key Competencies for each Domain below have been developed through consultation with both documents as well as other curriculum sources. The competencies of the Undergraduate Medical Education Curriculum at Queen’s were developed by considering how novice or student physicians would begin their studies and demonstrate progress through Clerkship to the level of expert physician described in the CanMEDS roles and Four Principles, upon completion of their post-graduate studies.

*How can we describe competencies so that students and teachers will understand them?*
Competencies require enabling Descriptors or characteristics to describe the components of the learning process necessary to achieve competence. These are further supported by Learning Objectives which describe the learning process in greater detail as it relates to specific areas of the curriculum, developed by experts in those specific areas of the curriculum. Learning Objectives are aligned to Assessment Activities and Teaching and Learning Methodologies to complete the curriculum.

*How does Professionalism fit into the competencies?*
The competency of Professionalism informs all other competencies in undergraduate medical education. Thus, attributes of professionalism are incorporated into communication, collaboration, scholarship, health advocacy, management, and expertise. The “personal intelligences” and “personal development” of the professional role of the physician determines how effectively the physician is able to apply the intellectual, emotional and technical components of her/his practice.

The competent physician is an **Expert** in the medical arts and sciences who additionally understands and demonstrates in their practice the characteristics of an effective **Communicator, Collaborator, Manager**, health **Advocate** and **Scholar**, while consistently embodying the attitudes and behaviours associated with the concept of **Professionalism**.
6.0 The Medical Expert

The undergraduate curriculum is designed as part of the larger continuum of medical education from undergraduate through postgraduate to professional education. It has the primary goal of establishing foundational knowledge and skills prior to postgraduate training.

Foundational knowledge and skills are those required to establish sound diagnostic and initial management approaches to all presentation based objectives including those set forth by the Medical Council of Canada.

Foundational knowledge and skills include:
- Basic scientific knowledge fundamental to understanding the scientific basis of disease.
- Clinical knowledge, skills and therapeutic approaches considered essential for all graduating physicians.
- Clinical judgement, decision making, problem solving and critical appraisal skills.

In the first stages of medical education, students will learn foundational concepts and begin to apply them in cases, demonstrations and other applications. During the clinical years, students will begin to apply these concepts in their management of patients.
Key Competencies and Descriptors:

Competent medical graduates:

1. Perform a complete and appropriate assessment of a patient
   a. Effectively identify and explore issues to be addressed in a patient encounter, including the patient’s context and preferences
   b. For purposes of prevention and health promotion, diagnosis and/or management, elicit a history that is relevant, concise and accurate to context and preferences
   c. For the purposes of prevention and health promotion, diagnosis and/or management, perform a focused physical examination that is relevant and accurate
   d. Select basic, medically appropriate investigative methods in and ethical manner
   e. Demonstrate effective clinical problem solving and judgment to address selected common patient presentations, including interpreting available data and integrating information to generate differential diagnoses and management plans

2. Utilize preventive and therapeutic interventions effectively
   a. Implement an effective management plan for selected common presentations in collaboration with a patient and their family
   b. Demonstrate effective, appropriate and timely application of preventive and therapeutic interventions for selected common presentations

3. Demonstrate proficient and appropriate use of selected procedural skills, diagnostic and therapeutic
   a. Demonstrate effective, appropriate and timely performance of selected diagnostic procedures
   b. Demonstrate effective, appropriate and timely performance of selected therapeutic procedures.

The development of these broad key competencies will be promoted by a curricular framework that focuses on the key clinical presentations as defined by the Medical Council of Canada. This provides patient focused education emphasizing patient assessment, clinical reasoning, and the integration of basic science and clinical knowledge. It requires that, for each clinical presentation, the following issues are addressed:

1. What aspects of normal human structure and physiology are relevant to this presentation?
2. What pathologic or maladaptive processes are active?
3. What are the key clinical conditions that might underlie this presentation?
4. What history and physical examination is relevant?
5. What diagnostic tests or procedures are relevant?
6. What treatment modalities are available, what is their mechanism of action, and what is the evidence of their effectiveness?
7. What clinical conditions should be specifically reviewed or emphasized because they are particularly common or excellent illustrations of this presentation?

This approach requires a coordinated approach by members of multiple disciplines who will be empowered to determine the specific content or “level” for an undergraduate learner. This key determination can be guided by the following considerations:

| In determining curricular content within the Medical Expert domain, consider the following: |
| 1. What knowledge is required to enable the student to initially manage patients presenting with this clinical problem? |
| 2. What knowledge would be reasonably expected of any practicing physician? |
| 3. What knowledge would be considered prerequisite to entry into postgraduate training in this field of study? |

7.0 Communicator

Physicians are involved in dynamic exchanges with patients, families, colleagues and members of the community. Effective communication skills are therefore essential to successful medical practice.

Medical students will learn the principles of effective communication and will demonstrate these in a variety of educational and clinical settings. They will recognize that being a good communicator is a core clinical skill for physicians, and that effective patient-centered communication can foster patient satisfaction, physician satisfaction, adherence and improved clinical outcomes. In the clinical years, students will begin to incorporate these principles in their management of patients.

Key Competencies and Descriptors:

Competent medical graduates:

1. **Demonstrate skills and attitudes to foster rapport, trust and ethical therapeutic relationships with patients and families**
a. Apply the skills that develop positive therapeutic relationships with patients and their families, characterized by understanding, trust, respect, honesty and empathy
b. Respect patient confidentiality, privacy and autonomy
c. Listen effectively and be aware of and responsive to nonverbal cues
d. Communicate effectively with individuals regardless of their social, cultural or ethnic backgrounds, or disabilities
e. Effectively facilitate a structured clinical encounter

2. Elicit and synthesize relevant information and perspectives of patients and families, colleagues and other professionals
   a. Gather information about a disease, but also about a patient’s beliefs, concerns, expectations and illness experience
   b. Seek out and synthesize relevant information from other sources, such as a patient’s family, caregivers and other professionals

3. Convey relevant information and explanations appropriately to patients and families, colleagues and other professionals, orally and in writing
   a. Provide accurate information to a patient and family, colleagues and other professionals in a clear, non-judgmental, and understandable manner;
   b. Maintain clear, accurate and appropriate records of clinical encounters and plans
   c. Effectively present verbal reports of clinical encounters and plans

4. Develop a common understanding on issues, problems and plans with patients and families, colleagues and other professionals to develop a shared plan of care
   a. Effectively identify and explore problems to be addressed from a patient encounter, including the patient’s context, responses, concerns and preferences
   b. Respect diversity and difference, including but not limited to the impact of gender, religion and cultural beliefs on decision making
   c. Encourage discussion, questions and interaction in the encounter
   d. Engage patients, families and relevant health professionals in shared decision making to develop a plan of care
   e. Effectively address challenging communication issues such as obtaining informed consent, delivering bad news, and addressing anger, confusion and misunderstanding

8.0 Collaborator

Physicians must collaborate effectively with others in a variety of settings to ensure the delivery of optimal patient care. This “two-way” interaction allows physicians to receive and give information and advice, as well as work cooperatively with other members of patient care teams and patients, demonstrating leadership when appropriate.
At the undergraduate level, medical students will learn principles of effective teamwork and collaboration, as well as about the roles and responsibilities of members of patient care teams and community health care agencies in a variety of settings. They will demonstrate collaboration and cooperation in interaction with others in educational and clinical settings.

Key Competencies and Descriptors:

Competent medical graduates:

1. **Participate effectively and appropriately as part of a multiprofessional healthcare team.**
   a. Clearly describe and demonstrate their roles and responsibilities under law and other provisions, to other professionals within a variety of health care settings,
   b. Recognize and respect the diversity of roles and responsibilities of other health care professionals in a variety of settings, noting how these roles interact with their own
   c. Work with others to assess, plan, provide and integrate care for individual patients
   d. Respect team ethics, including confidentiality, resource allocation and professionalism
   e. Where appropriate, demonstrate leadership in a healthcare team.

2. **Work with others effectively in order to prevent, negotiate and resolve conflict.**
   a. Demonstrate a respectful attitude towards other colleagues and members of an interprofessional team members in a variety of settings
   b. Respect differences, and work to overcome misunderstandings and limitations in others, that may contribute to conflict
   c. Recognize one’s own differences, and work to overcome one’s own misunderstandings and limitations that may contribute to interprofessional conflict
   d. Reflect on successful interprofessional team function.

3. **Include patients and families in prevention and management of illness**
   a. Identify the roles of patients and their family in prevention and management of illness
   b. Learn how to inform and involve the patient and family in decision-making and management plans

4. **Teach and learn from others consistently**
   a. Improve teaching through advice from experts in medical education
   b. Accept supervision and feedback
   c. Seek learning from others
9.0 Health Advocate

As health advocates, physicians responsibly use their expertise and influence to advance the health and well being of individual patients, communities and populations. In addition, health advocacy integrates the attitudes of compassion, understanding, respect for, and belief in the role of physician to act on behalf of patient, community and population health.

At the undergraduate level, Health Advocacy begins with the acquisition of specific knowledge about the diverse factors that influence the health of individuals, communities and populations. This progresses to an investigation into principles of health promotion, prevention of disease, access to community resources, health advocacy programs and population wide health programs.

In the clinical years, students will begin to incorporate these principles in their management of patients.

Key Competencies and Descriptors:

Competent medical graduates:

1. **Synthesize the diverse factors that influence health, disease, disability and access to care of patients into management plans**
   a. Explain factors that influence health, disease, disability and access to care including non-biologic factors (cultural, psychological, sociologic, familial, economic, environmental, legal, political, spiritual needs and beliefs)
   b. Demonstrate awareness and respect for these factors in identifying the health needs of a patient.
   c. Discover opportunities for health promotion and disease prevention as well as resources for patient care.

2. **Identify and communicate about community resources to promote health, prevent disease and manage illness in their patients and the communities they will serve.**
   a. Identify the role of and method of access to services of community resources
   b. Describe appropriate methods of communication about community resources to and on behalf of patients
   c. Locate and analyze a variety of health communities and community health networks in the local Kingston area and beyond.

3. **Apply knowledge of the determinants of health for populations to medical encounters and problems.**
   a. Describe barriers to access to care and resources
b. Discuss health issues for special populations, including vulnerable or marginalized populations

c. Identify principles of health policy and implications

d. Describe health programs and interventions at the population level

4. **Integrate the principles of advocacy into their understanding of their professional responsibility to patients and the communities they will serve.**

   a. Describe the role and examples of physicians and medical associations in advocating collectively for health and patient safety.

   b. Analyze the ethical and professional issues inherent in health advocacy, including possible conflict between roles of gatekeeper and manager.

---

**10.0 Manager**

Physicians are required to effectively manage the care of their patients, their practice and themselves in the context of the health care system, community and society in which they practice.

Medical students will learn the principles and obligations of effective and responsible health care delivery in Canada, and will encounter a variety of practice settings in order to inform both their career choices and entry into postgraduate training. In the pre-clinical period, medical students will be expected to apply the principles of effective management to their educational experience. In the clinical setting, they will begin to apply the principles of effective management to patient care.

**Key Competencies and Descriptors:**

Competent medical graduates:

1. **Demonstrate management of effective patient care**

   a. Integrate and evaluate information, therapies and procedures to learn how to manage patient care.

   b. Focus on health promotion and illness prevention as a part of management of patient care.

   c. Identify how to utilize resources for patient care.

2. **Describe a variety of practice settings**

   a. Outline strategies for effective practice in a variety of health care settings, including their structure, finance and operation

   b. Outline the common law and statutory provisions which govern practice and collaboration within hospital and other settings

   c. Identify career paths within health care settings.

3. **Implement strategies to balance personal health and educational/professional priorities**
a. Identify and implement strategies that promote care of oneself and one’s colleagues to maintain balance between personal and educational/professional commitments

11.0 Scholar

As scholars, physicians demonstrate a lifelong commitment to reflective learning as well as the creation, dissemination, application and translation of medical knowledge.

The graduating medical student will create an effective personal learning experience that includes the capacity to engage in reflection and self-assessment, the ability to critically evaluate information and its sources (the literature), and the ability to contribute to the process of knowledge creation (research).

Key Competencies and Descriptors:

Competent medical graduates:

1. Implement effective personal learning experiences including the capacity to engage in reflective learning
   a. Develop lifelong learning strategies through integration of the principles of learning
   b. Self-assess learning critically, in congruence with others’ assessment, and address prioritized learning issues
   c. Ask effective learning questions and solve problems appropriately
   d. Consult multiple sources of information
   e. Employ a variety of learning methodologies
   f. Learn with and enhance the learning of others through communities of practice
   g. Employ information technology (informatics) in learning, including, in clerkship, access to patient record data and other technologies

2. Critically evaluate medical information and its sources (the literature)
   a. Search literature efficiently to critically appraise evidence
   b. Practise making decisions for health care through sound analysis of evidence

3. Contribute to the process of knowledge creation (research)
   a. Adopt rigorous research methodology and scientific inquiry procedures
   b. Practise research ethics, including disclosure, conflicts of interest, research on human subjects and industry relations
   c. Evaluate the outcomes of learning
   d. Identify the nature and requirements of organizations contributing to medical education?
12.0 Professional

Medical professionalism is defined as a set of values, behaviours and relationships that underpin the trust the public has in doctors. Professionalism in medicine is based on ethical principles and bound by codes, both explicit and implicit, regarding the relationships between physicians and their patients, their profession, and society at large. As medical professionals, physicians demonstrate maintenance of competence, ethical behaviour, adherence to professional codes, adherence to legal principles and responsibilities, as well as the qualities of integrity, honesty, altruism, service to others, justice, respect for others, and self-regulation. The importance of the patient-physician relationship is a crucial part of professionalism.

At the undergraduate level, professionalism begins with the study of diverse principles of professionalism. Students will be expected to demonstrate the foundations of these principles and integrate them into their behaviour and all of their professional interactions, from the first weeks of their education to clerkship and beyond.

Key Competencies and Descriptors:
Competent medical graduates:

1. **Demonstrate appropriate professional behaviours to serve patients, the profession and society**
   a. Practice appropriate professional behaviours, including honesty, integrity, commitment, dependability, compassion, respect, an understanding of the human condition, and altruism in the educational and clinical settings
   b. Learn how to deliver the highest quality patient-centred care, with commitment to patients’ well being.
   c. Plan to maintain competence

2. **Apply knowledge of legal and ethical principles to serve patients, the profession and society**
   a. Analyze ethical issues encountered in practice (such as informed consent, confidentiality, truth telling, vulnerable populations, etc.)
   b. Analyze legal issues encountered in practice (such as conflict of interest, patient rights and privacy, etc.)
   c. Analyze the psycho-social, cultural and religious issues that could affect patient management
   d. Define and implement principles of appropriate relationships with patients

3. **Apply profession-led regulation to serve patients, the profession and society.**
   a. Recognize the professional, legal and ethical codes and obligations required of current practice in a variety of settings, including hospitals, private practice and health care institutions, etc.
   b. Recognize and respond appropriately to unprofessional behaviour in colleagues
4. **Practice a balance among personal, educational and patient care goals:**
   a. Identify and balance personal and educational priorities to foster future balance between personal health and a sustainable practice
   b. Practice personal and professional awareness, insight and acceptance of feedback and peer review; participate in peer review
   c. Implement plans to overcome barriers to health personal and professional behavior
   d. Recognize and respond to other educational/professional colleagues in need of support

13. **Next Steps**

A curriculum is an integrated and progressive series of learning experiences intended to allow our students to meet these stated competencies.

With the competencies defined, the **Curriculum Committee** will undertake a review of our current curriculum. The bulk and central framework of our curriculum will be directed at providing the Medical Expert competency. This will entail a series of courses, based on clinical presentations. **Course Leaders** will determine specific content, based on the principles outlined above.

The remaining competencies (Advocate, Collaborator, Communicator, Manager, Scholar and Professional) will be reviewed by **Working Groups** which will be tasked with developing learning strategies, assessment methodologies and curricular elements intended to promote their development in our students. These recommendations will be reviewed by the Curriculum Committee who will oversee their integration.

The **Teaching and Learning Committee** will set standards and provide guidance for development of optimal educational methodologies.

The **Student Assessment and Evaluation Committee** will develop an integrated assessment strategy, based on these competencies and objectives.

**All members of faculty** will be asked to review this document and all suggestions regarding curricular reform.

Prepared and submitted by Curricular Advisory Group:

A. Sanfilippo (Chair), E. Ashbury, L. Davidson, M. Gibson, S. Moffatt, S. Pinchin, M. Sylvester, S. Taylor, E. VanMelle
Sources


Harden, R.M., Crosby, J.R., Davis, M.H., &Friedman, M. From competency to meta-competency: a model for the specification of learning outcomes.
